WorldCat: The Medicare economic index

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Appendix II

The Medicare Economic Index: Impact on Program Costs and Beneficiary Liability

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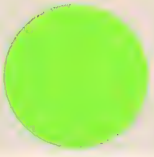

Project Report

Appendix II

The Medicare Economic Index: Impact on Program Costs and Beneficiary Liability

Lynn Paringer

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I. INTRODUCTION

The Medicare program was designed to limit the financial liability of the elderly for medical care expenditures. In 1977, 44.3 percent of personal health care spending by the elderly was reimbursed under the Medicare program. Per capita health spending by the elderly has risen very rapidly in recent years, from $647 in 1968 to $2,026 in 1978. The large per capita growth in spending coupled with increases in the size of the eligible population is reflected in the large increases in program spending, from $5.1 billion in 1968 to $21.8 billion in 1978.

Physician services account for 23 percent of Medicare expenditures. Like spending for other Medicare services, the amount spent on physician care has increased dramatically over time. Coverage for physician services is voluntary for the over 65 population and requires payment of a monthly premium. In 1966 this premium was $3.00 per month. By 1981 the monthly premium had risen to $11.00 per month. In addition to the premium, a deductible of $60 and a 20 percent minimum cost sharing requirement is imposed on the covered elderly population. Of the $260.13 per capita spending for physicians' services in 1977, the Medicare program paid for 37 percent. The premiums paid by beneficiaries account for 26.4 percent of total physician expenditures. The remaining beneficiary contributions to physician expenditures are; deductible, 10.6 percent, coinsurance 15.3 percent and liability for unassigned claims, 10.7 percent. Thus of the $260.13 spent per capita in 1977 for physicians' services, $164.02 was financed by the beneficiaries themselves through out of pocket payments and purchase of supplemental insurance. (The poor elderly who are also eligible for Medicaid will have the coinsurance and deductible picked up by Medicaid.)

The rapidly increasing costs of the Medicare program has led to the imposition of a number of cost containment initiatives. The purpose of this paper is to examine the effect of one such initiative, the Medicare economic index applied to physician services on program and beneficiary costs.

II. BACKGROUND

Physicians are reimbursed by the Medicare program for services provided to Medicare beneficiaries using a reasonable, customary and prevailing charge methodology. A physician's reasonable charge is the lowest of (1) the billed charge for the service, (2) the customary charge which is the physician's median charge for services rendered during the calendar year immediately preceding the fee screen year,* and (3) the prevailing charge, which is set at the 75th percentile of all customary charges for the same service in the same geographic area.

The 1972 amendments to the Social Security Act provided that beginning June 30, 1973, the prevailing charge levels could not exceed the levels for 1973 "except to the extent justified by economic changes as reflected in appropriate economic index data." Implementation of the economic index was postponed due to the Economic Stabilization Program (ESP) which was in effect from August 1971 to April 30, 1974 and which severely restricted the rate of increase in Medicare reasonable fees. From May 1, 1974 until June 30, 1975, reasonable fees were determined on the basis of the reasonable, customary and prevailing charge methodology without reference to the economic index. From

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* A physician's actual charges for services rendered January-December, 1978 would be used to calculate the customary charge for services rendered during the fee screen year, July 1, 1979 to June 30, 1980.

July 1, 1975 to the present, the economic index has been used to restrain the rate of increase in prevailing charges.*

The value of the economic index from year to year is determined by (a) changes in the expenses incurred by physicians in office practice and (b) changes in the general earnings levels of workers due to factors other than productivity increases. To calculate expenses incurred by physicians in office practice, price increases for goods and services computed by the Bureau of Labor Statistics are used. They include 1) hourly earnings of non-supervisory workers in finance, insurance and real estate , 2) housing component of the CPI, 3) private transportation component of the CPI, 4) drugs and pharmaceutical component of the producer price index and 5) the all other, miscellaneous component of the CPI. A sixth component, malpractice insurance premiums, is obtained via a survey of several major insurers. These six components are weighted to obtain the office expense portion of the economic index. The weights reflect the share of office expenses represented by each component of the index. In 1979 these weights were .44, .22, .06, .11, .04 and .13 for components one through six respectively. The earnings component of the index is derived by taking the average weekly earnings of production and non-supervisory workers and subtracting from it the increase in output per man hour. To calculate the final value of the index, the earnings and expenses component are weighted on a 40-60 percent basis.

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* When the economic index provision was finally implemented, it would have resulted in a rollback of prevailing charges for some physicians to levels below those which existed for fiscal year 1975. Congress responded to this with a provision in PL 94-182 which raised all prevailing charge levels for 1976 which would have been lower than actual fiscal year 1975 levels to the level for 1975. Enactment of P.L. 94-368 provided that implementation of the economic index would never result in a rollback of prevailing charges below the 1975 level.

The index is applied in the following manner:

> If the increase in the prevailing charge in a locality for a particular medical item or service resulting from an aggregate increase in customary charges for that item or service does not exceed the index, the increase is permitted and any portion of allowable increase not used is carried forward and is a basis for justifying increases in that prevailing charge in the future. However, if the increase in the prevailing charge exceeds the allowable percentage increase,the increase will be reduced to the allowable percentage. Future increases will be justified only to the degree they do not exceed further rises in the economic index.

The implementation of the economic index has a number of policy implications. First, if customary charges increase at rates above that permitted by the economic index, there will be a movement toward the use of a fee schedule for reimbursing physician services under Medicare.

Secondly the use of the economic index severs, to some extent, the relationship between current billed charges and future reasonable fees. Previously, physicians with customary charges below the 75th percentile could increase future reasonable fees by increasing current billed charges. The economic index puts an additional constraint on physicians' ability to determine future reasonable fees.

Third, the index locks in relative fee differentials across specialties and geographic areas since it is applied across all physicians regardless of practice location or specialty. For California, which maintains separate profiles for each of 28 PSRO areas and over 25 specialties this means a locking in of relative prices across each of these dimensions. This could affect the future location decisions of physicians and/or their willingness to provide services to the Medicare population.

Because the economic index limits the rate of increase in prevailing charges and hence in reasonable fees, it should limit the growth in expenditures made by the federal government for a given level of output. In addition,

there will be an indirect impact on the level of Medicaid expenditures in states which buy into Medicare coverage on behalf of the elderly Medicaid eligibles. For these states, Medicaid picks up the deductible and coinsurance on behalf of beneficiaries eligible for both Medicare and Medicaid. To the extent that increases in reasonable fees are restrained, the level of coinsurance payments will also be restrained. Hence, Medicaid payments on behalf of joint Medicare/Medicaid eligibles will be lower than they would be in the absence of the index.

The effect of the economic index restrictions on the out-of-pocket costs of the non-Medicaid eligible elderly for medical care depends on the willingness of physicians to accept Medicare patients on assignment. Under the existing Medicare program, physicians have two billing options, assignment and non-assignment, which may be exercised on a claim by claim basis.* For services provided on assignment, the physician agrees to accept the reasonable fee as payment in full for services rendered. He bills to and receives from the Medicare program 80 percent of the reasonable fee less any unpaid deductible. For patients taken on non-assignment, the physician bills the patient for the full amount of the service. The patient in turn bills the Medicare program and receives 80 percent of the reasonable fee for the service less any unpaid deductible. Thus, assuming deductibles have been met, the out-of-pocket costs for patients taken on assignment are 20 percent of the reasonable fee. Patients not taken on assignment are liable for the 20 percent coinsurance on the reasonable fee plus the full amount of the difference between the billed charge and the reasonable fee.

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* Joint Medicare/Medicaid eligibles must be taken on assignment, hence, these patients face no out-of-pocket costs for services. This discussion is therefore limited to the population eligible only for Medicare.

Because out-of-pocket costs are calculated differently for assigned and non-assigned services, the cost implications of the economic index are different for each group. Since the economic index constrains the reasonable fee to levels below what it otherwise would be, it also reduces the amount of coinsurance required of the assigned beneficiaries. For non-assigned services, the effect of the index is quite different. Because non-assigned patients must pay the difference between the billed charge and reasonable fee, efforts to reduce the reasonable fee will shift the program savings onto the non-assigned beneficiaries by increasing their out-of-pocket costs. The net result is an increase in the beneficiary cost burden of 80 percent of the difference between the reasonable fee unadjusted by the index and the fee as adjusted by the economic index. Hence, the extent to which the beneficiary cost burden will change as a consequence of the economic index depends on the mix of assigned and non-assigned services.

Finally, the economic index has a more subtle impact on beneficiary costs. To become eligible for Part B benefits under Medicare, beneficiaries not eligible for Medicaid must pay a monthly premium. To the extent that the index limits the increase in Medicare program expenditures, this may reduce the rate of increase in the Part B premium and hence the insurance cost borne by the beneficiaries.

III. DATA

The data used to estimate the cost impact of the economic index on the Medicare program and on recipients of services is based on Medicare and Medicaid claims submitted by a sample of California physicians in the specialties of general practice, general surgery, internal medicine, orthopedic surgery, and ophthalmology. All claims submitted to the programs during the first quarter of 1978 for each of over 470 procedures are included in the data files. These 470 procedures represent from 90-95 percent of all services provided by these physicians to either of the programs. The claims files were provided by Blue Shield of California which is the fiscal intermediary for Medicaid and all Medicare claims submitted by northern California physicians and by Occidental Insurance which is the Medicare intermediary for physicians practicing in southern California. Included in this claims data is information on the specific procedure, the physicians' billed charge for the procedure and the fee which was allowed by the Medicare program. Each claim also contains a beneficiary ID number and data on the age and sex of the claimant, as well as the physician ID and the physicians' specialty.

The physicians in our sample consist of solo practice physicians and physicians practicing in single specialty groups. For the solo practice physicians, our data consist of claims specific to a single physician. For the group sample, all claims are billed under a single group number and it is not possible to separate out claims for a single physician. Data are also not available on the number of physicians in any group.

Table 1 lists the number of solo practice physicians in our sample, the number of single specialty groups and the universe of physicians practicing in the State of California.

Table 1

Distribution of Physicians by Specialty

	Number of Solo Practitioners	Number of Groups	Universe of Physicians in the State
General Practice	1,007	225	6,102
General Surgeons	651	79	2,234
Internal Medicine	804	179	3,601
Orthopedic Surgeons	184	91	1,274
Ophthalmologists	197	54	1,091

In addition to the claims data we also have information on each physician's customary charge for each procedure, the prevailing charge for the procedure as constrained by the economic index and the unconstrained prevailing charge which we obtained from Blue Shield. Combining these two sets of data we are able to calculate program and beneficiary costs both with and without the economic index constraint and determine the program cost savings resulting from the economic index and the impact on beneficiaries of services.

The economic index was applied to medical, surgical, and radiology procedures. Pathology procedures were exempt from the economic index constraint. We have therefore omitted pathology procedures in the analysis that follows.

IV. COST SAVINGS FROM THE ECONOMIC INDEX

To estimate the cost impact of the economic index we calculated program and beneficiary costs both with and without the economic index constraint on prevailing fees. To do this we assumed that in response to the index only the reasonable fee for a procedure would change. A physician's total output, mix of services, and mix of assignment were presumed to not change in response to the index. While ignoring these behavioral responses of physicians to the economic index is an oversimplifcation of what likely occurred, this approach will provide a good indication of the change in fees paid by the program and by the beneficiaries of services for a constant level of output.

Since we had information on each physician's billed, customary, indexed prevailing and unindexed prevailng charge for each procedure we could determine the reasonable fee both with and without the economic index in the following manner.

$$UNINDEXEDR_{i,j} = \min(ABA_{i,j}, P_i, CUST_{i,j})$$

$$INDEXEDR_{i,j} = \min(ABA_{i,j}, IP_i, CUST_{i,j})$$

where

i refers to a specific procedure
j refers to a specific physician
UNINDEXEDR = unconstrained reasonable charge
INDEXEDR = reasonable charge as constrained by the economic index
ABA = average billed amount
P = 75th percentile of customary charges in the area
IP = prevailing charge as constrained by the economic index
CUST = customary charge

To calculate program costs for Medicare, we ignore deductibles, assuming the program pays 80 percent of reasonable charges:

$$\text{Program Costs} = \sum_i \sum_j (\text{INDEXEDR}_{i,j} * \text{NS}_{i,j}) * .8$$

where NSi,j = number of services of procedure i provided by physician j. The j's are summed over all physicians in a given specialty and the i's are summed over all procedures in a given procedure group and for a given plan (mandatory assigned, voluntary assigned, non-assigned).

Beneficiary cost burdens are calculated differently depending on whether the services are provided on an assigned or non-assigned basis. For assigned services, either the beneficiary or the Medicaid progam (if the patient is a joint Medicare/Medicaid eligible) must pay 20 percent of the reasonable fee. Thus the beneficiary or Medicaid cost burden for assigned claims is:

$$\text{Beneficiary Cost Burden} = \sum_i \sum_j (\text{INDEXEDRi,j} * \text{NS}_{i,j}) * .2$$

where i refers to assigned services.

Beneficiaries receiving services on a non-assigned basis pay 20 percent coinsurance on the reasonable fee plus the difference between the billed charge and reasonable fee. Their costs for non-assigned services are thus:

$$\text{Beneficiary Costs for Non-Assigned Services} = \sum_i \sum_j ((\text{ABAi,j} - .8\text{INDEXEDRi,j}) * \text{NSi,j})$$

Program and beneficiary costs in the absence of the economic index are calculated in a similar manner, substituting UNINDEXEDR for the reasonable fee in the calculations. Program and beneficiary savings are therefore represented by the difference between actual costs and what those costs would be were everything held constant (e.g., output, mix of assigned, non-assigned services) except the economic index limitation.

Cost Impact of the Economic Index on Joint Medicare/Medicaid Claims

Table 2 displays the cost to the Medicare and Medicaid programs for services provided by our sample physicians to joint Medicare/Medicaid beneficiaries. As stated previously services provided to this patient group must be done on assignment. Medicare program costs are calculated at 80 percent of reasonable charges and Medicaid costs are calculated at 20 percent of reasonable charges. Any constriant on reasonable fees will thus reduce Medicare and Medicaid costs by proportionately the same amount. Program costs are calculated at what they would be in the absence of the economic index and what they are given the economic index constraint. The percent reduction in costs resulting from the economic index is also presented in the table.

Program costs for services rendered by general practitioners in solo practice were reduced by 2.87 percent as a result of the economic index. Program costs for services rendered by group practice general practitioners were reduced by 3.33 percent as a result of the index. Cost reductions varied by procedure categories. The largest cost reductions were realized on surgical procedures, 5.64 percent for the solo practice physicians and 5.96 percent for the group practice physicians. Cost savings were smallest for radiology procedures.

The percent reduction in costs for services rendered by general surgeons was greater than that realized for the services of general practitioners. As a result of the index, costs were reduced by 5.79 percent on services provided by solo practice general surgeons and by 3.69 percent for group practice general surgeons. As with general practitioners, the largest cost reductions were realized on surgical services; 7.11 for solo practitioners and 4.95 for the groups. Cost reductions for radiology were substantially higher among general surgeons than among general practitioners, although a small proportion of revenue came from these services.

Table 2

Impact of the Economic Index on Medicare Program and Medicaid Costs
Mandatory Assigned Claims
(000's)

	Solo Practice Physicians						Group Practice Physicians					
	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology
General Practice												
Program Cost												
Without Index	$967.8	$505.7	$229.4	$178.7	$31.8	$22.3	$838.4	$415.2	$223.1	$108.3	$27.1	$64.7
With Index	940.1	492.6	222.4	173.1	30.0	22.0	810.5	400.4	217.0	103.8	25.5	63.7
Percent Change	-2.87	-2.59	-3.03	-3.14	-5.64	-1.48	-3.33	-3.55	-2.70	-4.14	-5.96	-1.59
Medicaid Cost												
Without Index	242.0	126.4	57.3	44.7	7.9	5.6	209.6	103.8	55.8	27.1	6.8	16.2
With Index	235.0	123.2	55.6	43.3	7.5	5.5	202.6	100.1	54.3	26.0	6.4	15.9
Percent Change	-2.87	-2.59	-3.03	-3.14	-5.64	-1.48	-3.33	-3.55	-2.70	-4.14	-5.96	-1.59
General Surgery												
Program Cost												
Without Index	513.4	119.0	94.0	54.7	241.6	4.1	227.1	38.7	31.4	21.5	131.3	4.1
With Index	483.6	113.1	90.3	51.9	224.4	3.9	218.7	38.0	30.8	21.3	124.8	3.9
Percent Change	-5.79	-4.94	-3.91	-5.17	-7.11	-4.14	-3.69	-1.94	-2.18	-1.13	-4.95	-4.97
Medicaid Cost												
Without Index	128.3	29.7	23.5	13.7	60.4	1.0	56.8	9.7	7.9	5.4	32.8	1.0
With Index	120.9	28.3	22.6	13.0	56.1	1.0	54.7	9.5	7.7	5.3	31.2	1.0
Percent Change	-5.79	-4.94	-3.91	-5.17	-7.11	-4.14	-3.69	-1.94	-2.18	-1.13	-4.95	-4.97
Internal Medicine												
Program Cost												
Without Index	1,203.9	438.3	518.5	208.4	18.7	19.9	1,115.5	295.1	579.8	184.4	20.1	36.1
With Index	1,170.0	428.4	501.7	202.3	17.9	19.6	1,080.1	287.4	559.0	179.3	19.3	35.6
Percent Change	-2.82	-2.26	-3.24	-2.93	-4.24	-1.45	-3.12	-2.61	-3.58	-2.74	-3.79	-1.31
Medicaid Cost												
Without Index	301.0	109.6	129.6	52.1	4.7	5.0	278.9	73.8	144.9	46.1	5.0	9.0
With Index	292.5	107.1	125.4	50.6	4.5	4.9	270.2	71.8	139.7	44.8	4.8	8.9
Percent Change	-2.82	-2.26	-3.24	-2.93	-4.24	-1.45	-3.12	-2.61	-3.58	-2.74	-3.79	-1.31

Table 2
(Cont.)

	Solo Practice Physicians						Group Practice Physicians					
	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology
Orthopedic Surgery												
Program Cost												
Without Index	179.6	23.1	15.4	11.3	112.6	17.1	366.8	53.0	36.2	16.3	218.5	42.7
With Index	167.7	22.1	14.9	11.0	103.1	16.6	343.5	50.3	34.8	15.7	201.6	41.2
Percent Change	-6.61	-4.64	-3.52	-2.93	-8.43	-2.53	-6.36	-5.23	-3.93	-4.10	-7.77	-3.50
Medicaid Cost												
Without Index	$ 44.9	5.8	3.9	2.8	28.2	4.3	91.7	13.3	9.0	4.1	54.6	10.7
With Index	41.9	5.5	3.7	2.8	25.8	4.2	85.8	12.6	8.7	3.9	50.4	10.3
Percent Change	-6.61	-4.64	-3.52	-2.93	-8.43	-2.53	-6.36	-5.23	-3.93	-4.10	-7.77	-3.50
Ophthalmology												
Program Cost												
Without Index	281.7	53.6	.9	51.1	176.1	---	227.1	50.8	1.0	43.1	132.2	---
With Index	273.3	52.2	.9	49.9	170.3	---	224.5	50.5	.9	42.2	130.9	---
Percent Change	-2.95	-2.60	- .10	-2.34	-3.26	---	-1.13	- .69	-1.78	-2.13	- .97	---
Medicaid Cost												
Without Index	70.3	13.4	.2	12.8	44.0	---	56.8	12.7	.2	10.8	33.0	---
With Index	68.3	13.1	.2	12.5	42.6	---	56.1	12.6	.2	10.6	32.7	---
Percent Change	-2.95	-2.60	- .10	-2.34	-3.26	---	-1.13	- .69	-1.78	-2.13	- .97	---

Program cost savings for services rendered by internists were proportionately smaller than the savings for services of general practitioners or general surgeons. Part of this may reflect the fact that a much smaller share of program expenditures to internists are for surgical procedures. Cost savings on office and hospital visit procedures of internists were similar to those for services rendered by general practitioners and somewhat less than savings on the office and hospital visits provided by general surgeons.

Of the five specialties examined in this paper, the largest percent reduction on mandatory assigned program expenditures occurred among orthopedic surgeons. The economic index resulted in a 6.61 percent decrease in Medicare and Medicaid program costs for solo practitioners in this specialty and a 6.36 percent reduction for the groups. The largest reductions occurred among surgical procedures; 8.43 among solo practice physicians and 7.77 percent among the groups.

Cost savings on services rendered by ophthalmologists in solo practice were similar to those obtained for general practitioners' services and internists' services. The savings for group practice ophthalmology services were substantially smaller. As with the other specialties, the largest percent reduction in costs occurred among surgical procedures.

Cost Impact of the Economic Index on Voluntary Assigned Services

Voluntary assigned services are provided to individuals who are eligible for Medicare only (i.e., their income is not low enough to qualify them for Medicaid as well) and for whom the physician agrees to accept the Medicare reasonable fee as payment in full for services. On voluntary assigned services the program reimburses the physician for 80 percent of the reasonable fee and the patient is responsible for the 20 percent coinsurance. Thus when reasonable

fees are constrained by the economic index, both program and beneficiary liability are reduced by the same proportion.

Table 3 shows the program and beneficiary costs both with and without the economic index constraint and the percent reduction in costs resulting from the economic index constraint on prevailing fees. Program and beneficiary expenditures for voluntary assigned services provided by general practitioners were reduced by 2.54 percent as a result of the economic index. On services of group practice general practitioners costs were reduced by 2.40 percent as a result of the index. The range in cost reductions was from 1.31 percent for services rendered by group practice ophthalmologists to 7.08 percent for services of group practice orthopedic surgeons.

The largest percent cost reductions for all groups except group practice internists and ophthalmologists occurred among surgical procedures. Savings on these procedures ranged from .88 percent to 8.23 percent of unindexed costs. Orthopedic and general surgeons, specialties for which surgical procedures represent well over half of their revenue experienced the largest declines in revenue from surgical procedures as a result of the index. Consequently the decline in their revenue from all procedures was greater than that experienced by either general practitioners or internists.

In general, the fraction of revenue received by each of our sample specialties for radiology procedures was small as was the reduction in revenue which resulted from the index. Office and hospital visits account for the bulk of revenue to general practitioners and internists and the reduction in program and beneficiary costs for these procedures as a result of the index was between .18 percent and 4.03 percent.

Table 3

Impact of the Economic Index on Medicare Program and Beneficiary Costs
Voluntary Assigned Claims
(000's)

	Solo Practice Physicians						Group Practice Physicians					
	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology
General Practice												
Program Cost												
Without Index	$281.3	$ 96.6	$135.2	$ 31.1	$ 12.3	$ 6.0	$172.6	$ 55.7	$ 77.8	$ 22.6	$ 7.5	$ 8.9
With Index	274.1	94.6	131.3	30.3	11.9	5.9	168.5	54.4	76.4	21.7	7.2	8.8
Percent Change	-2.54	-2.10	-2.84	-2.43	-3.34	-1.46	-2.40	-2.35	-1.85	-4.32	-4.09	-1.32
Beneficiary Costs												
Without Index	70.3	24.2	33.8	7.8	3.1	1.5	43.2	13.9	19.5	5.7	1.9	2.2
With Index	68.5	23.6	32.8	7.6	3.0	1.5	42.1	13.6	19.1	5.4	1.8	2.2
Percent Change	-2.54	-2.10	-2.84	-2.43	-3.34	-1.46	-2.40	-2.35	-1.85	-4.32	-4.09	-1.32
General Surgery												
Program Cost												
Without Index	366.1	50.0	60.1	25.1	229.9	1.1	243.0	25.3	35.0	18.8	159.5	4.4
With Index	349.8	48.2	58.4	24.5	217.7	1.0	231.9	24.8	33.8	18.2	150.7	4.3
Percent Change	-4.48	-3.58	-2.88	-2.55	-5.30	-4.23	-4.51	-1.86	-3.37	-3.35	-5.48	-2.66
Beneficiary Costs												
Without Index	91.5	12.5	15.0	6.3	57.5	.3	60.7	6.3	8.8	4.7	39.9	1.1
With Index	87.4	12.0	14.6	6.1	54.4	.3	58.0	6.2	8.5	4.5	37.7	1.1
Percent Change	-4.48	-3.58	-2.88	-2.55	-5.30	-4.23	-4.51	-1.86	-3.37	-3.35	-5.48	-2.66
Internal Medicine												
Program Cost												
Without Index	668.0	159.5	388.8	98.6	10.3	10.7	989.6	184.5	604.1	150.5	19.1	31.4
With Index	645.9	156.6	373.2	95.9	9.6	10.5	957.1	180.0	581.3	146.5	18.4	30.9
Percent Change	-3.31	-1.80	-4.03	-2.81	-5.72	-2.08	-3.29	-2.51	-3.78	-2.64	-3.40	-1.54
Beneficiary Costs												
Without Index	167.0	39.9	97.2	24.7	2.6	2.7	247.4	46.1	151.0	37.6	4.8	7.8
With Index	161.5	39.2	93.3	24.0	2.4	2.6	239.3	43.0	145.3	36.6	4.6	7.7
Percent Change	-3.31	-1.80	-4.03	-2.81	-5.72	-2.08	-3.29	-2.51	-3.78	-2.64	-3.40	-1.50

Table 3
(Cont.)

	Solo Practice Physicians						Group Practice Physicians					
	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology
Orthopedic Surgery												
Program Cost												
Without Index	147.6	12.3	12.3	7.8	105.4	9.7	297.9	30.9	27.8	12.0	197.3	29.8
With Index	138.1	11.9	11.5	7.4	97.6	9.6	276.8	28.7	26.5	11.3	181.1	29.1
Percent Change	-6.44	-3.47	-6.53	-3.79	-7.39	-1.94	-7.08	-7.08	-4.59	-5.50	-8.23	-2.48
Beneficiary Costs												
Without Index	$ 36.9	3.1	3.1	1.9	26.3	2.4	74.5	7.7	7.0	3.0	49.3	7.5
With Index	34.5	3.0	2.9	1.9	24.4	2.4	69.2	7.2	6.6	2.8	45.3	7.3
Percent Change	-6.44	-3.47	-6.53	-3.79	-7.39	-1.94	-7.08	-7.08	-4.59	-5.50	-8.23	-2.48
Ophthalmology												
Program Cost												
Without Index	183.7	15.2	1.3	16.3	150.9	---	177.0	19.0	1.1	25.5	131.5	---
With Index	179.1	15.1	1.3	16.1	146.7	---	174.7	18.9	1.0	24.4	130.3	---
Percent Change	-2.51	-1.04	- .54	-1.57	-2.78	---	-1.31	- .18	- .95	-4.38	- .88	---
Beneficiary Costs												
Without Index	45.9	3.8	.3	4.1	37.7	---	44.3	4.7	.3	6.4	32.9	---
With Index	44.8	3.8	.3	4.0	36.7	---	43.7	4.7	.3	6.1	32.6	---
Percent Change	-2.51	-1.04	- .54	-1.57	-2.78	---	-1.31	- .18	- .95	-4.38	- .88	---

Cost Impact of the Economic Index on Non-Assigned Claims

Although program costs for non-assigned sevices are reduced when reasonable fees are constrained, this cost reduction will be shifted on to non-assigned beneficiaries in the form of higher out-of-pocket costs. Table 4 indicates the cost impact on the program and on non-assigned beneficiaries from the economic index. Program cost reductions ranged from 1.55 percent for group practice ophthalmologists to 6.22 percent for group practice orthopedic surgeons. Percent increases in the costs to beneficiaries ranged from 2.97 percent for individuals receiving services from group practice ophthalmologists to 13.96 percent for those receiving services from group practice orthopedic surgeons.

Program cost savings for non-assigned services rendered by general practitioners were 3.13 percent for solo practice physicians and 3.39 percent for group practice physicians. The effort to hold down reasonable fees and curtail program expenditures for these physicians resulted in a shift in cost burden to non-assigned beneficiaries whose costs rose by 6.84 and 7.33 percent for services rendered by solo practice and group practice physicians respectively. The largest increase in beneficiary costs occurred in the surgical procedure category where costs rose by 9.69 and 11.32 percent. Beneficiary cost increases for office and hospital visits ranged from 4.47 percent to 9.08 percent.

Program savings on non-assigned services provided by general surgeons were 5.30 percent on services of solo practice physicians and 3.89 percent on services of group practice MDs. Beneficiary costs increased by 10.71 percent and 8.13 percent on services rendered by solo and group practice physicians respectively. As with general practitioners, the largest percent reduction in program costs and the greatest percent increase in beneficiary costs occurred for surgical procedures. Beneficiary costs rose by 11.95 percent and 9.16 percent compared to program cost reductions of 6.08 percent and 4.47 percent

Table 4

Impact of the Economic Index on Medicare Program and Beneficiary Costs
Non-Assigned Claims
(000's)

	Solo Practice Physicians						Group Practice Physicians					
	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology
General Practice												
Program Cost												
Without Index	$1,696.9	$936.5	$407.8	$171.2	$119.0	$62.5	$834.9	$408.6	$215.4	$ 77.0	$65.6	$68.4
With Index	1,643.8	906.0	394.5	168.2	113.5	61.6	806.5	391.8	210.7	75.0	61.9	67.1
Percent Change	-3.13	-3.26	-3.25	-1.75	-4.58	-1.41	-3.39	-4.10	-2.16	-2.58	-5.66	-1.81
Beneficiary Costs												
Without Index	776.4	414.1	198.5	80.9	56.2	26.7	386.4	184.3	103.8	38.1	32.8	27.4
With Index	829.5	444.7	211.7	83.9	61.7	27.6	414.8	201.1	108.4	40.1	36.5	28.7
Percent Change	6.84	7.37	6.68	3.71	9.69	3.29	7.33	9.08	4.47	5.22	11.32	4.51
General Surgery												
Program Cost												
Without Index	1,049.2	180.7	105.9	60.4	696.8	5.5	546.7	86.6	45.0	24.5	371.7	19.0
With Index	993.6	172.5	102.6	58.9	654.4	5.3	525.4	83.7	44.0	24.2	355.1	18.4
Percent Change	-5.30	-4.57	-3.14	-2.44	-6.08	-3.65	-3.89	-3.32	-2.18	-1.02	-4.47	-2.96
Beneficiary Costs												
Without Index	519.2	83.2	50.2	29.4	354.4	2.1	261.6	37.3	23.0	10.0	181.0	10.0
With Index	574.8	91.4	53.5	30.9	396.7	2.3	282.8	40.2	24.0	10.2	197.9	10.5
Percent Change	10.71	9.93	6.62	5.00	11.95	9.61	8.13	7.70	4.26	2.51	9.16	5.64
Internal Medicine												
Program Cost												
Without Index	3,205.2	1,487.9	1,107.7	460.7	67.4	81.5	2,616.4	999.1	1,010.7	400.2	60.5	145.9
With Index	3,115.9	1,447.3	1,070.1	452.7	64.9	80.8	2,534.2	969.4	970.0	390.9	58.8	145.2
Percent Change	-2.79	-2.73	-3.39	-1.72	-3.71	- .94	-3.14	-2.98	-4.03	-2.33	-2.82	- .50
Beneficiary Costs												
Without Index	1,535.7	690.3	558.6	220.4	30.5	35.8	1,213.6	453.9	492.0	181.9	27.1	58.6
With Index	1,626.1	731.0	596.1	228.4	33.0	36.6	1,295.8	483.7	532.7	191.3	28.8	59.3
Percent Change	5.82	5.89	6.71	3.60	8.20	2.13	6.77	6.55	8.27	5.14	6.29	1.24

Table 4
(Cont.)

	Solo Practice Physicians						Group Practice Physicians					
	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology
Orthopedic Surgery												
Program Cost												
Without Index	407.5	56.8	30.2	21.7	255.2	43.6	1,120.9	169.0	90.4	60.3	654.6	146.6
With Index	383.4	54.4	29.1	21.0	236.2	42.7	1,051.2	159.6	86.7	56.5	605.5	143.0
Percent Change	-5.93	-4.10	-3.71	-3.28	-7.45	-2.26	-6.22	-5.61	-4.15	-6.29	-7.50	-2.49
Beneficiary Costs												
Without Index	176.0	25.0	13.0	11.6	109.6	16.8	500.0	69.3	37.4	32.9	304.7	55.2
With Index	200.1	27.3	14.2	12.3	128.6	17.8	569.3	78.8	41.2	36.7	353.8	58.9
Percent Change	13.73	9.33	8.59	6.12	17.34	5.89	13.96	13.70	10.02	11.51	16.10	6.62
Ophthmology												
Program Cost												
Without Index	863.7	147.4	2.3	202.1	511.7	.2	630.5	100.5	2.0	170.6	355.5	1.8
With Index	842.9	144.7	2.3	199.6	496.1	.2	620.7	99.5	2.0	168.0	349.5	1.7
Percent Change	-2.41	-1.89	-.43	-1.19	-3.05	-2.40	-1.55	-1.00	-.44	-1.50	-1.70	-7.64
Beneficiary Costs												
Without Index	402.6	66.0	1.1	74.2	261.1	.1	329.3	42.4	1.4	58.3	226.4	.7
With Index	423.4	68.8	1.1	76.7	276.7	.1	339.0	43.4	1.4	60.9	232.5	.8
Percent Change	5.17	4.22	.89	3.24	5.97	6.02	2.97	2.35	.57	4.40	2.67	19.57

on solo and group practice surgical services respectively. Beneficiary cost increases for office and hospital visits were proportionately lower than for surgical services.

As a result of the index, program costs for services rendered by solo practice internists were reduced by 2.79 percent. Costs for group practice internists were reduced by 3.14 percent. Beneficiary costs for non-assigned services of internists increased by 5.82 percent and 6.77 percent for solo and group practice services respectively. As with the other specialties, percent increases in beneficiary costs and percent decreases in program costs were greatest for surgical procedures. For office and hospital visits which account for over two-thirds of internists' revenue, beneficiary cost increases from the economic index ranged from 5.89 percent to 8.27 percent.

Among the five specialties examined in this study, program cost reductions and increased beneficiary liability was the greatest for services rendered by orthopedic surgeons. Beneficiary liability on non-assigned services increased by 13.73 percent on services rendered by solo practice orthopedic surgeons and 13.96 percent on services rendered by group practice physicians. Program costs were reduced by 5.93 and 6.22 percent respectively for services rendered by solo and group practice physicians respectively. Again the services for which beneficiary liability increased the most were surgical services where costs increased 17.34 percent for services rendered by solo practice physicians and 16.10 percent for services rendered by physicians practicing in groups.

The category of physicians least affected by the economic index for non-assigned services were ophthalmologists. Program costs for services provided by solo practice physicians were reduced by 2.41 percent as a result of the index and costs for services of group practice physicians were reduced by 1.55 percent. Because the economic index did not have a large effect on

reasonable fees, beneficiary liability increased only slightly. Beneficiary costs on services of solo practice physicians increased by 5.17 percent and costs for services of group practice physicians increased by 2.97 percent.

Impact of the Economic Index on Total Program and Beneficiary Costs

In the previous sections we calculated the program and beneficiary cost impact of the economic index separately for mandatory assigned, voluntary assigned and non-assigned Medicare claims. Table 5 shows the total cost impact of the economic index across all types of claims by specialty and for solo practice and group practice physicians.

In the absence of the economic index, about $2.95 million would have been spent by the program on services rendered by solo practice general practitioners. Given the economic index constraint on prevailing charges $2.86 million was spent. Thus the savings during the first quarter of 1978 for services rendered by our sample general practitioners was about $88 thousand or 2.99 percent of unindexed program costs. Program savings on services provided by group practice general practitioners were 3.26 percent of unindexed costs.

The net impact on beneficiaries was an increase in costs of services received by general practitioners. The 2.54 percent reduction in beneficiary costs for voluntary assigned services combined with the 6.84 percent increase in costs of non-assigned services resulted in a net effect of increasing beneficiary costs for services provided by solo practice general practitioners of 6.06 percent. The fact that these physicinas are willing to provide only a small proportion of Medicare output on a voluntary assigned basis accounts for the net increase in beneficiary costs. Of the $1.98 million in program spending for voluntary and non-assigned services, over 85 percent was for non-assigned output. Among group practice general practitioners the results were similar. About 83 percent of their program spending for non joint

Table 5

Impact of the Economic Index on Program and Beneficiary Costs
All Claims
(000's)

	Solo Practice Physicians						Group Practice Physicians					
	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology
General Practice												
Program Cost												
Without Index	$2,948.0	1,539.6	773.1	381.1	163.3	90.8	$1,847.2	879.8	516.8	208.1	100.4	142.1
With Index	2,860.0	1,494.1	748.9	371.8	155.7	89.5	1,786.9	847.0	504.7	200.7	94.9	139.7
Percent Change	2.99	2.96	3.14	2.47	4.66	1.42	3.26	3.73	2.34	3.59	5.52	1.68
Beneficiary Costs												
Without Index	846.7	438.3	232.3	88.6	59.3	28.3	429.6	198.5	123.2	43.7	34.7	29.7
With Index	898.0	468.3	244.6	91.5	64.6	29.1	456.9	214.7	127.5	45.5	38.3	30.9
Percent Change	6.06	6.84	5.30	3.17	9.01	3.03	6.35	8.28	3.48	3.98	10.49	4.07
Medicaid Cost												
Without Index	242.0	126.4	57.3	44.7	7.9	5.6	209.6	103.8	55.8	27.1	6.8	16.2
With Index	235.0	123.2	55.6	43.3	7.5	5.5	202.6	100.1	54.3	26.0	6.4	15.9
Percent Change	-2.87	-2.59	-3.03	-3.14	-5.64	-1.48	-3.33	-3.55	-2.70	-4.14	-5.96	-1.59
General Surgery												
Program Cost												
Without Index	1,930.0	350.1	260.4	140.3	1,168.6	10.6	1,019.6	150.7	111.5	65.0	664.7	27.5
With Index	1,828.1	334.1	251.5	135.4	1,097.0	10.2	979.2	146.6	108.7	63.9	633.3	26.6
Percent Change	5.23	4.57	3.42	3.52	6.13	3.89	3.96	2.72	2.55	1.73	4.72	3.33
Beneficiary Costs												
Without Index	610.7	95.7	65.2	35.7	411.8	2.3	322.3	43.6	31.7	14.7	221.2	11.1
With Index	662.2	103.5	68.1	37.0	451.1	2.5	340.8	46.4	32.4	14.8	235.6	11.6
Percent Change	8.43	8.17	4.43	3.67	9.54	7.99	5.73	6.32	2.16	.63	6.52	4.81
Medicaid Cost												
Without Index	128.3	29.7	23.5	13.7	60.4	1.0	56.8	9.7	7.9	5.4	32.8	1.0
With Index	120.9	28.3	22.6	13.0	56.1	1.0	54.7	9.5	7.7	5.3	31.2	1.0
Percent Change	-5.79	-4.94	-3.91	-5.17	-7.11	-4.14	-3.69	-1.94	-2.18	-1.13	-4.95	-4.97

Table 5
(Cont.)

	Solo Practice Physicians						Group Practice Physicians					
	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology
Internal Medicine												
Program Cost												
Without Index	5,080.2	2,086.5	2,016.7	768.2	96.5	112.3	4,722.6	1,478.9	2,195.0	735.3	99.7	213.7
With Index	4,934.6	2,033.1	1,946.6	751.2	92.7	111.0	4,573.0	1,436.9	2,110.7	717.0	96.6	212.0
Percent Change	2.87	2.56	3.48	2.20	3.99	1.14	3.17	2.84	3.84	2.49	3.12	.79
Beneficiary Costs												
Without Index	1,702.7	730.2	655.8	245.1	33.1	38.5	1,461.0	500.1	643.0	219.6	31.9	66.4
With Index	1,786.5	770.1	689.4	252.3	35.5	39.2	1,535.1	528.6	678.0	227.9	33.4	67.1
Percent Change	4.92	5.47	5.12	2.96	7.12	1.83	5.07	5.71	5.44	3.80	4.84	.92
Medicaid Cost												
Without Index	301.0	109.6	129.6	52.1	4.7	5.0	278.9	73.8	144.9	46.1	5.0	9.0
With Index	292.5	107.1	125.4	50.6	4.5	4.9	270.2	71.8	139.7	44.8	4.8	8.9
Percent Change	-2.82	-2.26	-3.24	-2.93	-4.24	-1.45	-3.12	-2.61	-3.58	-2.74	-3.79	-1.31
Orthopedic Surgery												
Program Cost												
Without Index	735.3	92.3	58.0	40.9	473.6	70.5	1,786.9	253.1	154.5	89.0	1,070.9	219.3
With Index	689.9	88.5	55.6	39.5	437.4	68.9	1,672.5	238.7	148.0	83.9	988.5	213.4
Percent Change	6.17	4.14	4.26	3.27	7.64	2.25	6.40	5.69	4.17	5.82	7.70	2.69
Beneficiary Costs												
Without Index	212.9	28.1	16.1	13.6	135.9	19.2	574.0	77.0	44.4	35.9	354.0	62.7
With Index	234.7	30.3	17.0	14.2	153.0	20.1	638.5	85.9	47.8	39.6	399.0	66.2
Percent Change	10.23	7.91	5.69	4.72	12.55	4.89	11.23	11.61	7.73	10.09	12.72	5.53
Medicaid Cost												
Without Index	44.9	5.8	3.9	2.8	28.2	4.3	91.7	13.3	9.0	4.1	54.6	10.7
With Index	41.9	5.5	3.7	2.8	25.8	4.2	85.8	12.6	8.7	3.9	50.4	10.3
Percent Change	-6.61	-4.64	-3.52	-2.93	-8.43	-2.53	-6.36	-5.23	-3.93	-4.10	-7.77	-3.50

Table 5
(Cont.)

	Solo Practice Physicians						Group Practice Physicians					
	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology	Total	Office Visits	Hospital Visits	Other Medicine	Surgery	Radiology
Opthalmology												
Program Cost												
Without Index	1,332.7	216.5	4.5	270.6	840.8	.2	1,036.1	170.4	4.1	239.4	620.4	1.8
With Index	1,298.9	212.2	4.5	266.7	815.3	.2	1,021.3	169.0	4.0	234.8	611.8	1.7
Percent Change	2.54	2.00	3.53	1.43	3.41	2.40	1.43	.80	7.64	1.92	1.40	7.65
Beneficiary Cost												
Without Index	448.5	69.8	1.5	78.3	298.9	.083	373.5	47.1	1.7	64.7	259.3	.7
With Index	468.2	72.5	1.5	80.7	313.4	.087	382.7	48.1	1.7	67.0	265.1	.9
Percent Change	4.38	3.94	.55	2.99	4.87	4.82	2.46	2.10	.30	3.54	2.22	19.13
Medicaid Costs												
Without Index	70.4	13.4	.2	12.8	44.0	---	56.8	12.7	.2	10.8	33.0	---
With Index	68.3	13.1	.2	12.5	42.6	---	56.1	12.6	.2	10.6	32.7	---
Percent Change	-2.95	-2.60	-.10	-2.34	-3.26	---	-1.13	-.69	-1.78	-2.13	-9.7	---

Medicare/Medicaid eligibles was for services provided on a non-assigned basis.

The net increase in beneficiary costs resulting from the economic index is evident for other specialties as well. The 4.48 percent reduction in beneficiary costs for voluntary assigned services of solo practice general surgeons when balanced against the 10.71 percent increase in costs on non-assigned services resulted in a net increase in beneficiary liability of 8.43 percent. The increase in liability for services provided by group practice physicians was 5.73 percent. About 26 percent of program spending on services to non-Medicaid eligibles by solo practitioners was for voluntary assignment. This was true for 44 percent of the program spending for services delivered by groups.

The economic index resulted in a net reduction in program costs for services provided by internists of 2.87 percent on services provided by solo practitioners and 3.17 percent on services provided by groups. Beneficiary liability increased by 4.92 percent for solo practitioners' services and 5.07 percent for services of groups. Costs to the Medicaid program for joint Medicare/Medicaid eligibles decreased by 2.82 percent for services of solo practice internists and 3.12 percent for services of groups.

The specialty for which the largest program cost reduction occurred as a result of the economic index was orthopedic surgery. Program costs as a result of the index were 6.17 percent below what they otherwise would have been for solo practitioners and 6.40 percent below unindexed costs for group practice physicians. Beneficiary liability also increased the most for services provided by this specialty; 10.23 percent for solo practitioners' services and 11.23 percent for services of groups.

The specialty least affected by the index was ophthalmology. Program cost reductions for services provided by solo practitioners were only 2.54 percent and for those provided by groups the reduction was only 1.43 percent. Beneficiary liability increased by 4.38 percent for services of solo practitioners and 2.46 percent for services of groups.

CONCLUSIONS

There is some evidence that the economic index did have a small effect on holding down costs paid by the Medicare program on behalf of Medicare beneficiaires in 1978. The percent reduction in program costs ranged from 1.43 percent for services provided by group practice ophthalmologists to 6.40 percent on services provided by group practice orthopedic surgeons. Costs for surgical procedures were reduced by more than costs for other types of procedures.

The impact on beneficiary liability from the economic index depends on whether the individual received services on an assigned or non-assigned basis. For services provided on assignment, efforts to hold down the reasonable fee reduce beneficiary liability as well. Proportionately the reductions in program and beneficiary liability are about the same. When services are provided to Medicaid eligibles and the index constrains the reasonable fee, Medicaid costs will also be reduced in about the same proportion since the program picks up the coinsurance on behalf of the joint eligibles. Medicaid savings from the economic index ranged from 1.13 percent for services provided by group ophthalmologists to 6.61 percent on services provided by orthopedic surgeons in solo practice. The largest percent reduction in costs occurred for surgical procedures. Findings for non-Medicaid eligibles were similar. Cost savings ranged from 1.31 percent on services of group practice ophthalmologists to 7.08 percent on services of group practice orthopedic surgeons. Again, the largest cost reductions were for surgical procedures.

The category of beneficiaries which was negatively impacted by the economic index was those receiving services on a non-assigned basis. For them, the decrease in reasonable fees resulted in an increase in out-of-pocket price. Since the majority of program spending on behalf of non-Medicaid

eligibles is for services provided to non-assigned beneficiaries, a substantial portion of the Medicare population can be expected to incur increased costs as a result of the economic index. Increases in beneficiary liability ranged from 2.97 percent for services of group practice ophthalmologists to 13.96 percent for services of group practice orthopedic surgeons. The increase in liability went up to as much as 17.34 percent for surgical procedures.

The analysis in this paper assumes that the only effect of the index was to alter the reasonable fees of physicians. Output and the mix of services provided on assignment and non-assignment were assumed constant. If physicians altered their behavior in response to the index the economic impact could be much different. For example if the index limitation on prevailing fees reduced physician willingness to assign services, beneficiary liability would increase even further. We did note a decline in physician willingness to assign services since the economic index became effective. Between 1975 and 1978 the percent of services assigned at the physician's option (services to Medicaid eligibles are excluded) declined from 17.2 percent to 12.9 percent for general practitioners. Thus, rather than experiencing a decline in liability from the index due to lower reasonable fees, some previously assigned beneficiaries would experience an increase in costs due to the shift in assignment. Reductions in output could reduce both program and beneficiary liability. The impact of such a change on health status and access to appropriate care is uncertain.

This analysis is also limited to an assessment of data for the first quarter of 1978. As the index becomes more constraining over time the program savings and beneficiary liability could change significantly. It is also likely that the behaviorial responses of physicians to the index will be

greater the more constrained they become. In a later paper we will analyze the impact of economic index on physician behavior using a theoretical model of physician behavior and empirically estimating the model using a regression framework.